MARINE SKILL REPORT SUBMITTED TO THE

UNIVERSITY OF HAWAII MARINE OPTION PROGRAM

Education of Grade-school Students about the Coral Reef Ecosystem in Kaneohe Bay

DURATION

October 11, 1988 -- December 15, 1988

PROJECT MEMBER

George K. Stender

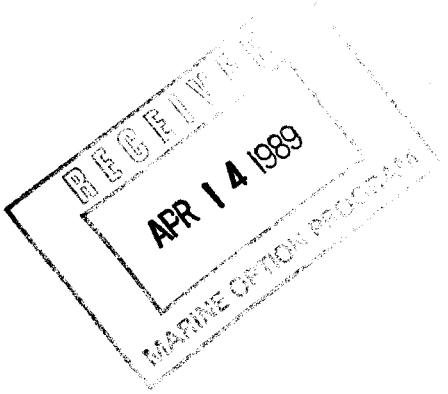
ADVISORS

Carole McLean, Executive Director,
Friends of Heeia State Park

Dr. David Krupp, Coordinator, WCC MOP

REPORT DATE

April 3, 1989



INTRODUCTION

Kaneohe Bay is important to the population of Oahu because it is the only barrier reef system present in the main Hawaiian Islands (Maragos, 1972). However, this fact is not recognized by many island residents. In reality, many consider the bay as being polluted and dead due to abuse of the environment publicised between 1960 and 1980. Others, unaware of the pollution problems altogether, may recall Kaneohe Bay as the home of the ``Coral Gardens''. The Friends of Heeia State Park Environmental Education Program was initiated in October 1988 to encourage public awareness of Kaneohe Bay and the land adjacent to it. Education of students from schools in the Windward District was used to spark interest in those who will be responsible for the management of our natural resources in the future.

MATERIALS AND METHODS

The program involved taking up to forty students from grades two through twelve on a catamaran cruise in Kaneohe Bay. Classes were taken twice a week, from 8 A.M. to 11 A.M. aboard the Barefoot One, a fifty foot long catamaran with a retractable glass viewing box suspended from the main deck amidships. A combination of motor and sail power was used to cruise from Heeia Kea Pier to a small patch reef off of Kahaluu. While underway, water safety, navigation, and coral reef biology was discussed, and samples of corals were passed around. Considerable time was spent talking with students and answering questions in order to give them a chance to relax and enjoy the trip as well as boosting their interest. When the boat was moored to the patch reef, the students were allowed to feed the fishes and observe the various forms of marine life. The glass box proved ineffective due to poor lighting encountered in the morning, however, visibility over the sides

of the vessel proved adequate during most days. Emphasis on pollution and habitat preservation was the main concern discussed during the return trip to the pier.

After returning to the pier the class was taken to Heeia State Park, where a touch tank with live animals from the bay, as well as other marine related exhibits were located. After touring those exhibits, the class was turned over to Karl Zuttermeister, a Hawaiian culture specialist, who introduced the students to native plants and thier uses, the ahupua'a concept, a tour of Heeia Fishpond, and the completion of a Hawaiian craft.

CONCLUSION

The age group most suited to the program was between the third and fifth grades. Those younger than that tended to have attention spans too short to have much control during the cruise. The classes of intermediate and high school students were a little difficult to start with, but proved to be quite enthusiastic when a more personal approach, such as talking one-on-one with them was used. Many letters I received from those students thanked me for making them feel special, opposed to the typical teacher - student routine. The third - fifth grade groups were the best because of their open minds and ability to understand basic scientific concepts. Small groups with a parent or teacher in charge proved to be the best arrangement while on the boat.

Ocean conditions were quite variable, with equal numbers of kona and tradewind days. Kona wind days were ideal for reef watching but at the same time proved detrimental to lecture times because the outboard motors made speaking difficult. The kona winds also made sailing difficult.

The reef used for viewing was rubble-topped with moderate live coral growth near the edges. Porites compressa and Montipora capitata were most dominant and good clumps of coralline algae were also present, making for easy discussion of reef development. Fishes most common were Thalassoma duperrey, Gomphosus varius, Chaetodon miliaris, and Stegastes fasciolatus.

Back at Heeia State Park, the touch tank was the highlight of the marine section. Specimens of live corals, echinoderms, molluscs, and crustaceans were maintained by Bill Tyler of HIMB. The touch tank helped the students understand how fragile and exciting the life in the bay can be.

The shell, coral, and sand displays in the main hall were used to address other areas of interest. The Hawaiian culture section of the program helped to show the students how the land and ocean are not completely independent of each other, but rather are completely interdependent.

When each class was over we were confident that we had contributed to the preservation of the environment as long as a few students go away with a new awareness of their environment and how they can protect it in the future.

LITERATURE CITED

Maragos, J.E. 1972. A Study of the Ecology of Hawaiian Reef Corals. Ph.D. thesis, Univ. of Hawaii, Honolulu, 290 p.

STUDENT PROJECT PROPOSAL TO THE

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PROJECT MEMBER

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Dr. David Krupp, Coordinator, WCC MOP

PROPOSAL DATE

October 18, 1988

FINAL REPORT DEADLINE

January 15, 1989

INTRODUCTION

Kaneohe Bay is important to the population of Oahu because it is the only barrier reef system present in the main Hawaiian Islands (Maragos, 1972). However, this fact is not recognized by many island residents. In reality, many consider the bay as being polluted and dead due to abuse of the environment publicized between 1960 and 1980. Others, unaware of the pollution problems altogether, may recall Kaneohe Bay as the home of the ''Coral Gardens.'' This program being initiated is an effort to increase the publics' awareness of Kaneohe Bay and the land adjacent to it. By educating grade-school students about the environment, we hope to spark interest in the people who will be responsible for the management of our natural resources in the future.

MATERIALS AND METHODS

Each class will be met by Carole McLean and George Stender at Heeia Kea Pier. The class should be divided into four groups, each with a teacher or assitant in charge. Each group will be identified by color stickers and leaders will wear name tags. (Groups should be organized before arriving at pier.) Student waiver forms will be collected before boarding the boat.

All groups will board the boat and be seated in the main deck area for water safety instruction. As the cruise gets underway, George will discuss the physical features of Kaneohe Bay and coral reef biology. During the cruise two groups will be able to sit near the bow of the boat at each time. A PA system will be used to address the class when feasible or discussions will be done by individual groups. Questions are encouraged, and group leaders should play an active role in the group discussions, since many students will be afraid to speak up.

When the selected patch reef is approached, leaders should give

the crew members assistance by having the groups seated and ready to move out of the way if necessary. When the boat is secured, a glass box will be lowered into the water from the main deck for underwater viewing of the reef. Bread may be available for those who wish to feed the fishes. Species most likely to be observed are the saddle wrasse, milletseed butterfly, sargeant major, bird wrasse, and parrotfish. These will be illustrated on a poster onboard. During this time George will speak to students individually, pointing out items of interest. This segment will last approximately twenty to thirty minutes.

As the boat sails back to the pier, students may be served juice and students will be asked questions about various marine related subjects. When we reach the pier, groups will disembark and proceed in an orderly manner on the right-hand side of the pier to the bus, which will take the class to Heeia State Park.

There, two groups will be allowed to handle live invertebrates in an outdoor water table provided by HIMB, at Coconut Island. At the same time the remaining groups will view displays of shells, corals, marine litter, and other live animals in a small aquarium also provided by HIMB. After about ten minutes the groups will switch places, with lunch to follow.

After lunch the class will be turned over to Carl Zuttermeister, who will teach the class about native Hawaiian plants, the ahupua'a, fishponds, natural resources management, and Hawaiian culture. In addition students will complete a Hawaiian craft and play traditional Hawaiian games.

LITURATURE CITED

Maragos, J.E. 1972. A Study of the Ecology of Hawaiian Reef Corals. Ph.D. thesis, Univ. of Hawaii, Honolulu. 290 p.